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Differential Perceptual Capacities in Major and Minor Hemispheres

Whereas the cerebral hemispheres in animals below man are essentially symmetrical in function, the human hemispheres develop a pronounced lateral specialization, particularly in regard to language. Reasons for the lateralization of cerebral function in man remain speculative.

Psychological testing of human patients in whom the forebrain commissures were surgically divided for therapeutic reasons has further clarified the nature of the functional differences of the two hemispheres and provides a clue to possible evolutionary reasons for lateral specialization.

Tests were applied in which three-dimensional forms held in the right or left hand had to be matched with their unfolded shapes drawn as expanded patterns on cards and presented visually. It was found that the right, minor hemisphere was much superior to the left. Further, the mechanisms used by the two hemispheres in solving the problems appeared to be different, as indicated by the nature of the problems that proved to be easy or difficult. The data indicate that the mute, minor hemisphere is specialized for Gestalt perception, being primarily a synthesist in dealing with information input. The speaking, major hemisphere, in contrast, seems to operate in a more logical, analytic computer-like fashion. Its language is inadequate for the rapid complex syntheses achieved by the minor hemisphere.

The findings suggest that a possible reason for cerebral lateralization in man is basic incompatibility of language functions on the one hand and synthetic perceptual functions on the other.

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